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AN UNDESCRIBED SPECIES OF OPHIODOTHELLA ON FICUS

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(WITH PLATE 5)

The fungus herein described was collected repeatedly by the writer in the vicinity of Miami, Florida, in 1907 and 1908. It was recognized as an apparently undescribed Dothideaceous fungus, but until the appearance of the monograph on that group by Theissen and Sydow its generic position, even, could not be determined.

***Ophiodothella Fici* sp. nov.¹**

The stromata are 1 to 10 mm. in diameter, scattered irregularly or sometimes grouped concentrically, extending from the upper to the lower surface of the leaf, shining-black on the lower surface, usually long covered by the wrinkled remains of the epidermis and cuticle on the upper surface, which give it a whitish appearance. This coat disappears in old specimens and is often ruptured irregularly or pierced by the ostioles of the pycnidial cavities. The leaf is much thickened. Normally it is about 450μ thick but the diseased spots may be 650 to 860μ in thickness.

Three layers may be distinguished in the stroma: (1) between the upper epidermis and the palisade cells, usually destroying the inner two layers of the mostly three-layered epidermis, about 100 to 180μ thick, light-colored and thinner near the edges and very dark and thicker toward the center, especially in proximity to the pycnidial cavities. The two-layered palisade parenchyma occupies about 100 to 120μ , and is little modified except that the lower ends of the inner cells appear to be destroyed, and that here and there several cells of both rows are destroyed to make room for a mass of light-colored, stromatic hyphae to connect the

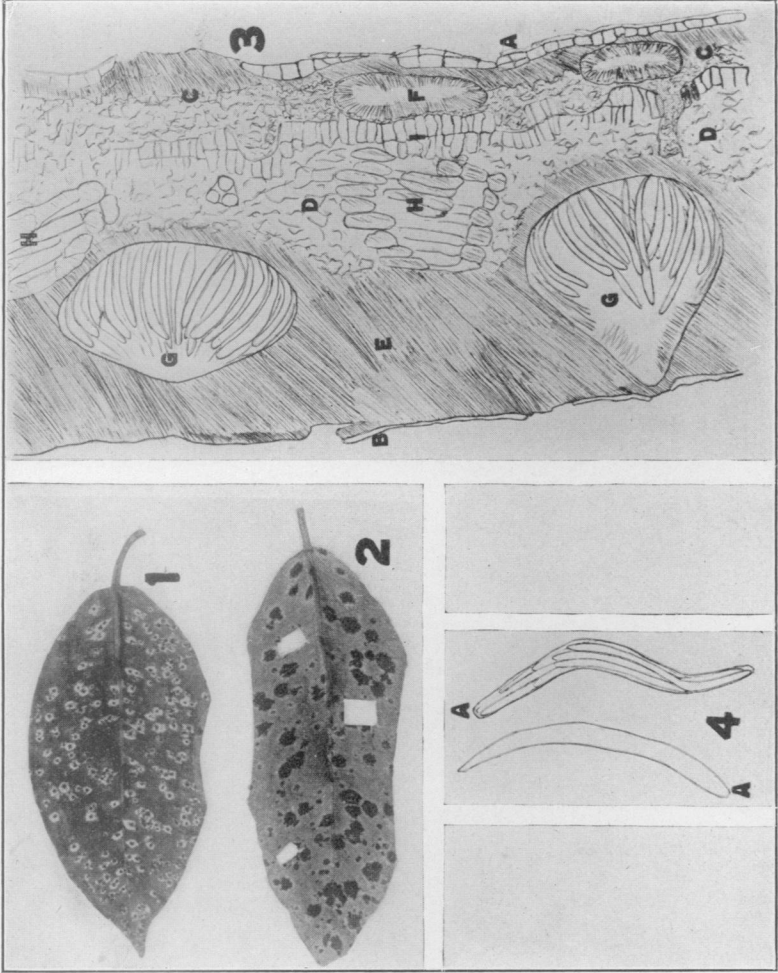
¹ Specimens of this species are in the collection of the New York Botanical Garden under the manuscript name of *Ophiodothis Fici* Earle. The species has also been collected in Cuba.

upper stromatic layer with the second one (2) which occupies most of the region normally filled by the spongy parenchyma. The latter is entirely destroyed or one may find a few disconnected cells here and there throughout the loose white stromatic structure which is 150 to 300 μ thick. This grades rather abruptly into (3) the lower stromatic mass which is dense and black and occupies the under side of the leaf to the utter destruction of the tissues, even the epidermis being destroyed except bits of the cuticle here and there, or near the edge of the spot. This layer is 210 to 230 μ thick.

The perithecia are few or many, depending upon the size of the stroma. They lie in the lower stroma, projecting upward into the loose, white middle stroma. In this latter the hyphae are darker and more densely crowded about the perithecial cavity. The perithecia are 400 to 450 μ high and 300 to 500 μ in diameter. The ostioles are only very slightly papillate. The basal portions of the perithecia appear on cross section of the leaf to be free, but in reality they are bound together by the loose mass of the colorless hyphae making up the middle stromatic layer. Their apical portions are connected by the lower stromatic layer almost as a sort of clypeus. There is no distinct perithecial wall. The very numerous asci arise in the basal portion of the perithecium and are elongate-fusiform, $105-175 \times 12-16 \mu$, tapering gradually to the base and somewhat more abruptly to the rounded apex.

Between the asci are found occasional slender, filiform, septate (?) paraphyses which equal the asci in length. These are very numerous around the edge of the mass of asci and line the walls of the upper portion of the perithecial cavity. The eight ascospores are filiform, $77-87 \times 4.7-6.2 \mu$, dilutely brown, very granular, the color residing in the granules, with a clear spot (vacuole ?) about 5 μ in length at the middle of the spore. They are not septate. Toward either end of the ascus they lie singly or doubly, but are in double or triple rows towards the middle. They taper more toward the lower end, being very slightly clavate. They are straight, or curved slightly at the smaller end.

In the younger spots before the perithecia appear, but persisting even until the maturity of the latter, there appear in the upper



OPHIODOTHELLA FICI BESSEY

stromatic layer a few to several pycnidial cavities which are at first without ostioles. They are 180 to 300 μ in diameter and about 75–100 μ thick in a vertical direction. They are lined on all sides by the very short conidiophores. The conidia are elongate, usually curved, rarely hooked, and slightly clavate, 12–19 \times 1 μ , non-septate, and hyaline or very dilutely brown when examined singly. When the infected leaves are placed in a damp-chamber the conidia ooze out in a worm-like mass, very dark brown or even shining-black in color, to the naked eye, and fusco-ferruginous under the lower magnifications of the microscope.

The single stromata or groups of stromata occupy yellowish-green spots on the leaves, with ferruginous margins. When abundantly infected the whole leaf takes on a yellowish color, contrasting strongly with the black stromata. Such leaves fall prematurely in great numbers.

On the leaves of *Ficus aurea* near Larkins, Dade Co., Florida, Oct. 31, 1907 (type), and January 15, 1908, and at Little River, November 12, 1907, as well as occasionally at other places in the vicinity of Miami, Florida. Type deposited in the Mycological Herbarium of the Bureau of Plant Industry, U. S. Department of Agriculture.

This fungus belongs without doubt in the vicinity of the genus *Ophiodothella* as limited by Theissen and Sydow, but has paraphyses in the perithecia, while these authors describe the genus as aparaphysate. Furthermore, none of the hitherto recognized species of this genus possess a pycnidial stage such as has the present species. However, these points do not seem to warrant the erection of a new genus.

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EXPLANATION OF PLATE 5

FIG. 1. Leaf of *Ficus aurea* affected by *Ophiodothella Fici*, upper surface.

FIG. 2. Ditto, lower surface.

FIG. 3. Section of stroma: (A) remains of upper epidermis, (B) remains of lower cuticle, (C) upper stromatic layer, (D) middle stromatic layer, (E) lower stromatic layer, (F) pycnidium, (G) perithecium, (H) vascular bundle, (I) palisade layer. The outlines of this sketch were made with the aid of a camera lucida.

FIG. 4. Asci, one showing ascospores in outline; (A) apical end.